

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
WESTERN DIVISION

SHINN FU COMPANY OF AMERICA,
INC., A Missouri Corporation,

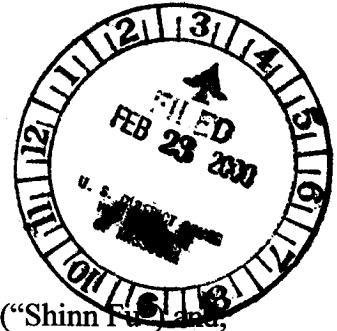
Plaintiff,

vs.

INTERNATIONAL MERCHANDISING
SERVICES, INC.,
A California Corporation,

Defendant.

00-0186-CV-W--1
Case No. _____



COMPLAINT

COMES NOW Plaintiff Shinn Fu Company of America, Inc. ("Shinn Fu"),
for its Complaint against defendant International Merchandising Services, Inc. ("IMS"),
states as follows:

GENERAL ALLEGATIONS

1. Plaintiff Shinn Fu is a corporation organized and existing under the laws
of the State of Missouri having its principal place of business at 10939 North Pomona,
Kansas City, Missouri 64153.

2. Defendant IMS is a corporation organized and existing under the laws of
the State of California, having its principal place of business at 6525 Smithway Street,
Commerce, California 90040.

3. This is an action for patent infringement, trademark infringement and
unfair competition under the U.S. patent laws, 35 U.S.C. § 271, *et seq.*, and the
Trademark Act of 1946, 15 U.S.C. § 1051 *et seq.*

4. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331, 1338(a) and 1367 and 15 U.S.C. § 1121; the Defendant is subject to personal jurisdiction in this District in that Defendant sells products, solicits customers and otherwise transacts business in this State and District; and venue is proper in this District and Division pursuant to 28 U.S.C. §§ 1391(b) and (c).

5. Plaintiff Shinn Fu owns U.S. Patent Nos. 5,431,369 (the '369 Patent) and 4,850,568 (the '568 Patent), which describe, respectively, a hand or foot operated lever mechanism and a lever-connecting mechanism for use in connection with hydraulic jacks. (True and accurate copies of the '369 Patent and '568 Patent are attached hereto as Exhibits A and B, respectively).

6. Plaintiff Shinn Fu manufactures and sells horizontal hydraulic jacks (commonly known as "floor jacks") incorporating the lever mechanisms disclosed in the '369 and '568 Patents and under the trademark "Speedy-Lift™." (True and accurate photographs of Plaintiff's packaging is attached hereto as Exhibit C).

7. Defendant IMS sells hydraulic floor jacks and is a direct competitor of Plaintiff Shinn Fu.

8. Recently, Plaintiff discovered that Defendant IMS is selling hydraulic floor jacks that incorporate the lever-connecting mechanism and hand or foot operated lever mechanism disclosed in the '369 and '568 Patents owned by Shinn Fu, and that Defendant IMS is advertising and offering for sale the infringing lever on its jack as a "Speedy-Lift" lever. (True and accurate photographs of Defendant IMS's infringing jack and packaging are attached hereto as Exhibit D).

9. This is not the first time that Plaintiff has been forced to confront Defendant IMS over IMS's misappropriation and wrongful use of Plaintiff's intellectual property.

10. Specifically, in April 1999, Plaintiff discovered that Defendant IMS was: (a) selling an air-actuated hydraulic jack incorporating a patented reciprocating pneumatic motor design disclosed in a Patent owned by Shinn Fu, (U.S. Patent No. 5,341,723); and (b) distributing an owner's manual with the infringing jack that was nearly a word-for-word copy of the copyrighted owner's manual distributed by Shinn Fu. (*See* April 28, 1999 Letter from Plaintiff's Counsel to IMS, attached hereto as Exhibit E).

11. Defendant IMS indicated that it was importing the infringing jack and manual from a Taiwanese manufacturer, Chung Maw, and led Plaintiff to believe that Defendant IMS would no longer sell the infringing jack and manual.

12. However, Defendant IMS's blatant infringement of Plaintiff's '369 and '568 Patents and "Speedy-Lift™" trademark plainly demonstrate that Defendant IMS is engaged in a deliberate campaign of using Plaintiff's intellectual property to unfairly compete with Plaintiff in interstate commerce.

13. Plaintiff is investigating whether Defendant IMS has kept its word with respect to the '723 Patent and copyrighted manual. For the time being, the instant action arises only from Defendant IMS' infringement of the '369 and '568 Patents and Plaintiff's "Speedy-Lift™" trademark.

COUNT I
PATENT INFRINGEMENT

14. Plaintiff incorporates by reference and realleges paragraphs 1-13 of this Complaint.

15. Plaintiff Shinn Fu is the owner of the '568 Patent and '369 Patents.

16. Defendant IMS has made, used, sold and offered for sale and continues to make, use, sell and offer to sell a hydraulic floor jack that features a lever-connecting mechanism and hand or foot operated lever mechanism identical to the articles disclosed in the '568 and '369 Patents owned by Plaintiff.

17. Defendant IMS's conduct constitutes infringement of the '369 and '568 Patents.

18. Defendant IMS's infringement has caused and will cause Plaintiff Shinn Fu to suffer irreparable injury, for which there is no adequate remedy at law.

COUNT II

TRADEMARK INFRINGEMENT

19. Plaintiff incorporates and realleges paragraphs 1-18 of this Complaint.

20. Since at least 1993, Plaintiff Shinn Fu has used the trademark "Speedy-Lift™" (the "Trademark") to identify hydraulic floor jacks that incorporate the lever-connecting mechanism and hand or foot operated lever mechanism covered by the '568 and '369 Patents.

21. Since the date of its first use of the Trademark, Plaintiff Shinn Fu has spent and continues to spend substantial sums advertising and promoting the Trademark throughout the United States in connection with Plaintiff's hydraulic floor jacks and the Trademark has come to identify Plaintiff Shinn Fu as a source of goods with respect to those products.

22. As a result of Plaintiff Shinn Fu's long use and extensive sales and advertising under the Trademark, and due to the inherently distinctive nature of the Trademark, the Trademark has acquired, throughout the United States, a reputation and goodwill indicating Plaintiff Shinn Fu as the source of origin of goods sold and rendered under the Trademark.

23. Upon information and belief, long after Plaintiff Shinn Fu adopted and began using the Trademark, Defendant IMS began using the infringing mark "Speedy-Lift" in connection with the sale of Defendant IMS's hydraulic floor jacks with levers that infringe Plaintiff's '568 and '369 Patents.

24. The infringing mark "Speedy-Lift" used by Defendant IMS is essentially identical to Plaintiff's Trademark.

25. Based upon Defendant IMS's recent misuse of Plaintiff Shinn Fu's '723 Patent and copyrighted manual in connection with IMS's infringing air-actuated hydraulic jack, and upon information and belief, Defendant IMS willfully and intentionally adopted and began using the infringing mark "Speedy-Lift" in connection with the sale of Defendant's jacks with complete knowledge of the fact that Plaintiff had previously used and was continuing to use the Trademark for Plaintiff's jacks and that, by virtue of its prior use, Plaintiff was exclusively entitled to use the term "Speedy-Lift"TM as a trademark in the hydraulic jack industry and such areas related thereto where use by others of a similar mark would create a likelihood of confusion.

26. Plaintiff Shinn Fu is entitled to protect of its valuable Trademark.

27. Defendant IMS's use of "Speedy-Lift" constitutes a violation of the prior rights of Plaintiff Shinn Fu in and to the Trademark and, therefore, infringes Plaintiff

Shinn Fu's rights under the common law inasmuch as the use of the infringing mark by Defendant constitutes the use of Plaintiff Shinn Fu's Trademark and is likely to cause confusion among the trade and public by causing persons to believe that Defendant IMS's goods are sponsored, endorsed, approved or licensed by Plaintiff Shinn Fu.

28. Defendant IMS is a direct competitor of Plaintiff Shinn Fu in the hydraulic jack business and the two companies share an identical customer base, the same advertising media and similar channels of trade.

29. Defendant's use of and the infringing marks is causing immediate and irreparable injury and damage to Plaintiff, such that Plaintiff has no adequate remedy at law, and Defendant will continue its infringing conduct unless enjoined by this Court.

COUNT III
UNFAIR COMPETITION AND FALSE DESIGNATION OF ORIGIN

30. Plaintiff incorporates and realleges paragraph 1- 29 of its Complaint.

31. As set forth above, Plaintiff Shinn Fu's Trademark is closely associated with and is an indication of the source of origin of the hydraulic floor jacks that incorporate the patented jack lever mechanisms described above, and the Trademark has acquired a substantial reputation and goodwill in connection with the goods offered by Plaintiff since at least as early as April, 1993.

32. The use by Defendant IMS of the infringing mark "Speedy-Lift" has been without the consent of Plaintiff, and is likely to cause confusion and mistake in the minds of the purchasing public by falsely creating the impression that the goods sold by Defendant are authorized, sponsored or approved by Plaintiff or to falsely attribute the origin of Defendant's goods to Plaintiff.

33. Further, Defendant's use of the infringing mark on goods sold by Defendant misrepresents the nature, qualities and characteristics of the goods by causing customers to believe that Plaintiff Shinn Fu has authorized and sponsored the sale of the goods by Defendant, and that the goods sold by Defendant are the same as the goods sold by Plaintiff, or that Plaintiff is the origin of such goods.

34. Based upon Defendant's recent infringement and misappropriation of Plaintiff's '723 Patent and copyrighted manual in connection with Defendant's air-actuated hand jack, and upon information and belief, the activities of Defendant complained of herein constitute willful and intentional infringement, and were commenced and continued in spite of Defendant's knowledge that the use and infringement of Plaintiff's Trademark was in flagrant violation of Plaintiff's rights.

35. Defendant's use of the infringing mark in connection with the sale of Defendant's products constitutes unfair and unlawful competition with Plaintiff, pursuant to 15 U.S.C. § 1125(a).

36. Defendant is continuing its course of unfair competition to the irreparable damage of Plaintiff and Plaintiff will suffer further irreparable damage for which Plaintiff has no adequate remedy at law.

37. Further, Plaintiff alleges that by using the infringing mark "Speedy-Lift" to identify and misrepresent Plaintiff's purported association with and authorization of Defendant IMS's goods, Defendant has falsely designated the origin of such goods under 15 U.S.C. § 1125(a) and has caused such goods to be sold in interstate commerce under such false designation, to Plaintiff's damage and irreparable injury.

38. Plaintiff further alleges that by selling the goods using the infringing mark “Speedy-Lift,” Defendant will cause the public to falsely attribute the origin of Defendant’s goods to Plaintiff or to falsely believe that such goods are sold by or on behalf of a party which is in some manner sponsored, endorsed, licensed or approved by Plaintiff or in some manner affiliated with Plaintiff.

39. Defendant’s infringing conduct, unfair competition and false designation of origin is causing irreparable damage to Plaintiff, Plaintiff has no adequate remedy at law, and Defendant will continue its wrongful infringing conduct unless enjoined by this Court.

40. Plaintiff further is entitled to recover from Defendant the damages Plaintiff has sustained and will sustain, and any gains, profits and advantages obtained by Defendant as a result of its acts of infringement, as alleged above.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff Shinn Fu Company of America, Inc. respectfully requests that the Court enter judgment against Defendant International Merchandising Services, Inc. on Counts I, II and III of Plaintiff’s Complaint and prays that this Court:

I. Enter judgment declaring that Defendant has infringed U.S. Patent Nos. 5,431,369 and 4,850,568.

II. Enter a preliminary and permanent injunction enjoining Defendant and its parents, subsidiaries, affiliates, officers, agents, employees, representatives, privies, successors, assigns, and all those acting for it or on its behalf, or acting in concert with it directly or indirectly, from making, using, selling or offering for sale any goods which infringe U.S. Patent Nos. 5,431,369 and 4,850,568.

III. Award Plaintiff damages, requiring Defendant to account for and pay to Plaintiff all damages caused by reason of Defendant's infringement of U.S. Patent Nos. 5,431,369 and 4,850,568, including either Defendant's total profit pursuant to 35 U.S.C. § 289, or other compensation pursuant to 35 U.S.C. § 284, or both.

IV. Enter judgment pursuant to 35 U.S.C. § 285 making this case exceptional and awarding Plaintiff its attorneys' fees, costs and expenses.

V. Enter judgment requiring Defendant to file with the Court and serve upon Plaintiff's counsel within thirty (30) days after entry of judgment in this matter a report in writing, under oath, setting forth in detail the manner and form in which Defendant has complied with said judgment, and the manner and form Defendant will employ in the future to ensure that products made, used, sold, or offered for sale by Defendant will not infringe U.S. Patent Nos. 5,431,369 and 4,850,568.

VI. Preliminarily and permanently enjoin the Defendant and its parents, subsidiaries, affiliates, officers, agents, employees, representatives, privies, successors, assigns, and all those acting for it or on its behalf, or acting in concert with it directly or indirectly, from infringing Plaintiff's Speedy-Lift trademark; from unfair competition with Plaintiff; from falsely designating the origin of Defendant's goods; and specifically from:

(A) Using the Trademark or any other mark, name or term confusingly similar thereto, alone or in combination with any other letters, words or marks, as a trademark on or in connection with the advertising, offering for sale, or actual sale of products of Defendant;

(B) Committing any other acts calculated to cause purchasers to believe that Defendant's goods are goods of Plaintiff or are in any manner sponsored, endorsed, licensed or approved by Plaintiff;

(C) Further diluting and infringing the rights of Plaintiff in and to the Trademark and damaging Plaintiff's goodwill; and

(D) Otherwise competing unfairly with Plaintiff in any manner.

VII. Enter judgment requiring Defendant to deliver up for destruction any products, equipment, catalogs, price lists, circulars, signs, prints, advertising and packaging material, labels, wrappers or any other materials in the possession of Defendant or under its control and bearing the Trademark or any other mark confusingly similar thereto.

VIII. Enter judgment granting Plaintiff an accounting and award and recovery of Defendant's profits and any other damages sustained by Plaintiff and the costs of this action, including attorney's fees, together with a judgment for a sum above the amount found as actual damages.

IX. Grant to Plaintiff interest on the damages so awarded; and

X. Grant to Plaintiff such further relief as may be equitable and profitable.

JURY DEMAND

Plaintiff demands a trial by jury on all counts.

Respectfully submitted,



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Peter Knops	Mo. #43516
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ATTORNEYS FOR PLAINTIFF

United States Patent [19]

Hung

[11] Patent Number: 5,431,369

[45] Date of Patent: Jul. 11, 1995

[54] HAND/FOOT DUAL OPERATED LEVER MECHANISM FOR HYDRAULIC JACKS

[76] Inventor: Michael Hung, 9-16, Nan Kan Hsia, Nan Kan, Lu Chu Hsiang, Tao Yuan County,

[21] Appl. No.: 253,090

[22] Filed: Jun. 2, 1994

[51] Int. Cl.⁶ B60P 1/48
 [52] U.S. Cl. 254/8 B; 254/DIG. 3
 [58] Field of Search 74/512, 481, 141.5, 74/519, 560, 523, 524; 60/477, 479; 254/8 B, 93 H, DIG. 3

[56] References Cited

U.S. PATENT DOCUMENTS

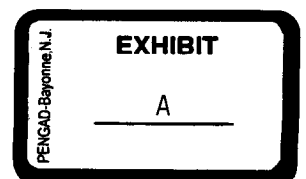
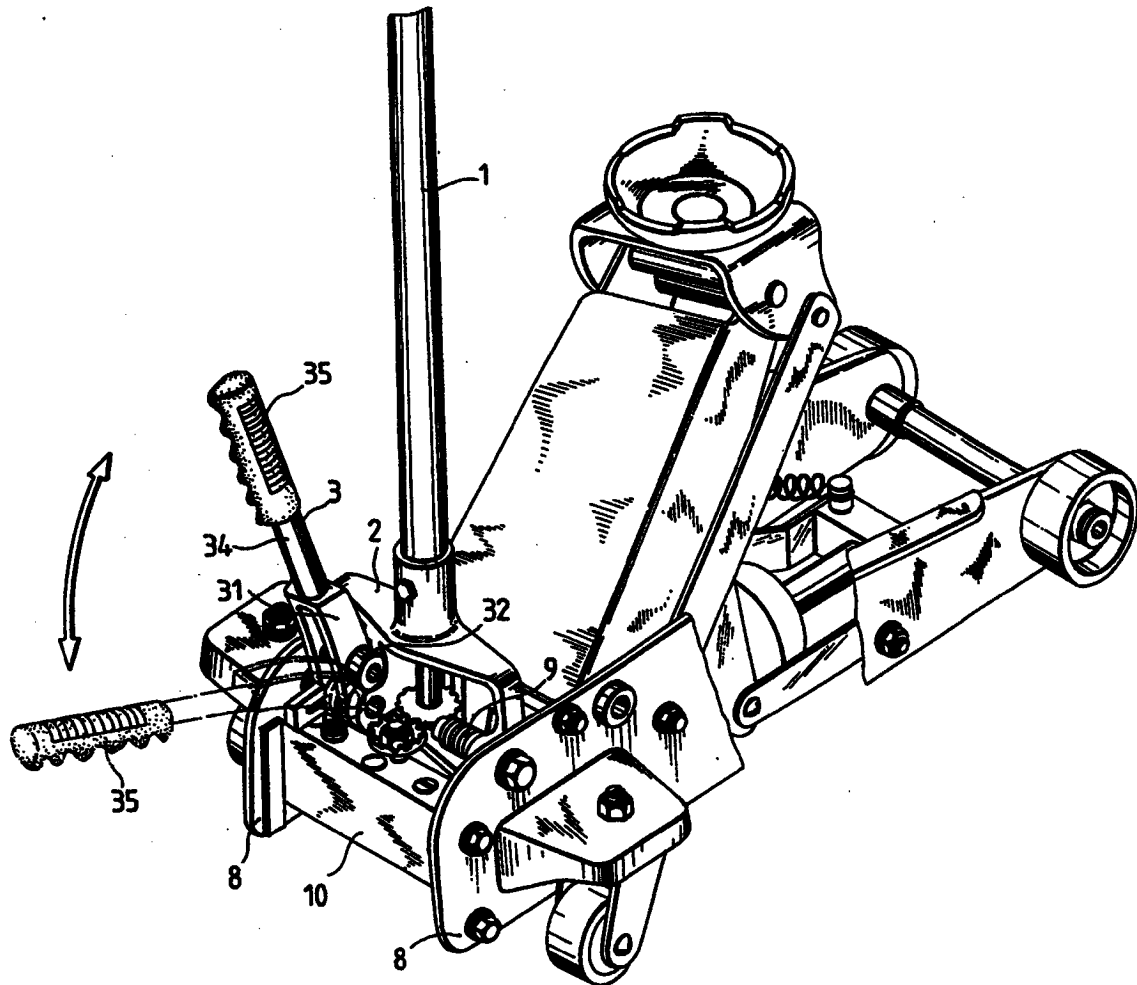
4,850,568 7/1989 Hung .

Primary Examiner—Robert C. Watson
 Attorney, Agent, or Firm—Wenderoth, Lind & Ponack

[57] ABSTRACT

A hand/foot dual operated lever mechanism for hydraulic jacks includes a short lever-type foot pedal that can be operated by a movable base of a longer lever and that operates a plunger of a pump. A bolt or shaft extends through the foot pedal and the movable base and a side plate of a hydraulic jack. A hidden spring retracts the foot pedal up so that the plunger of the pump can generate a pumping action to lift lifting arm linkages.

18 Claims, 3 Drawing Sheets



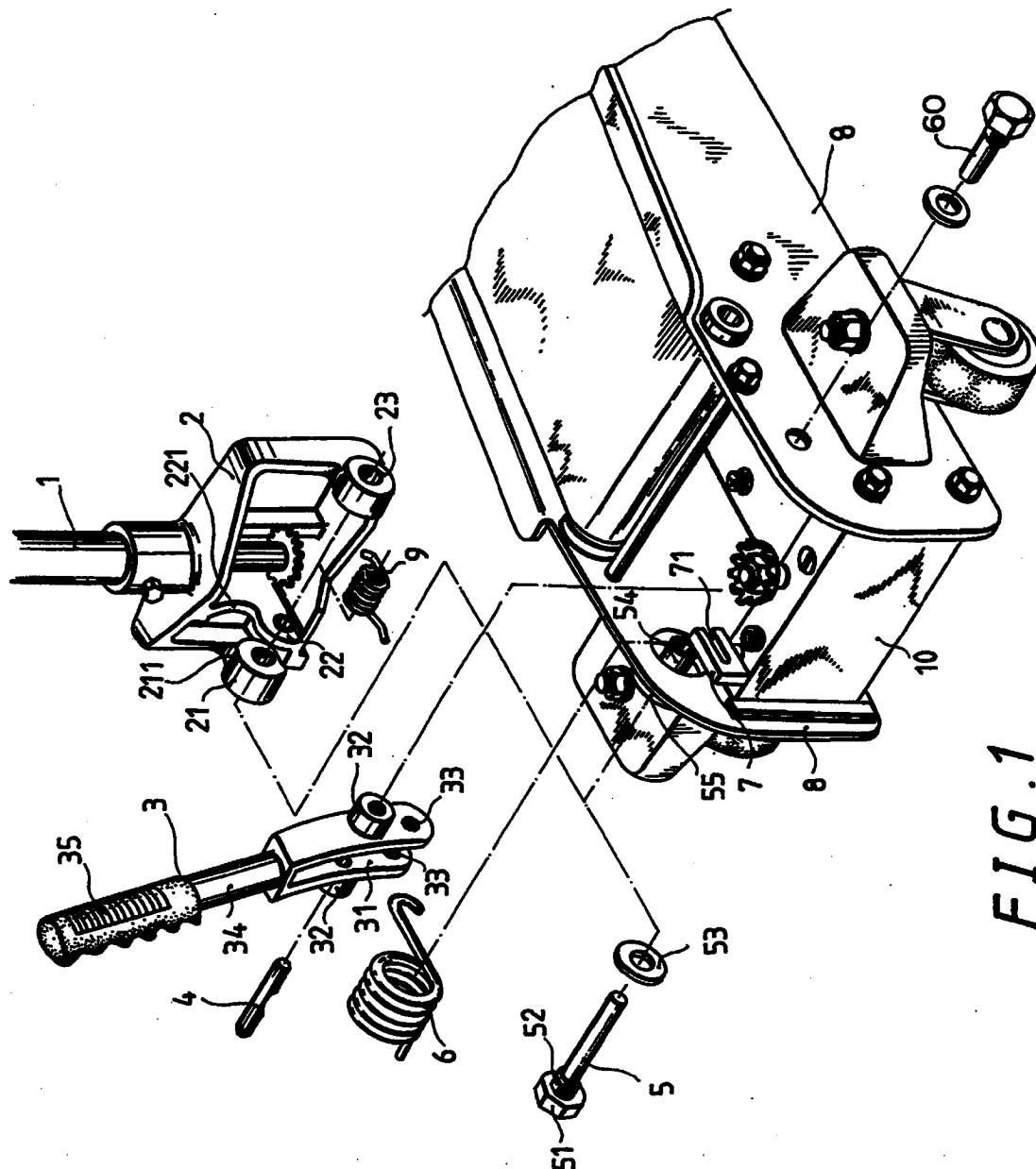


FIG. 1

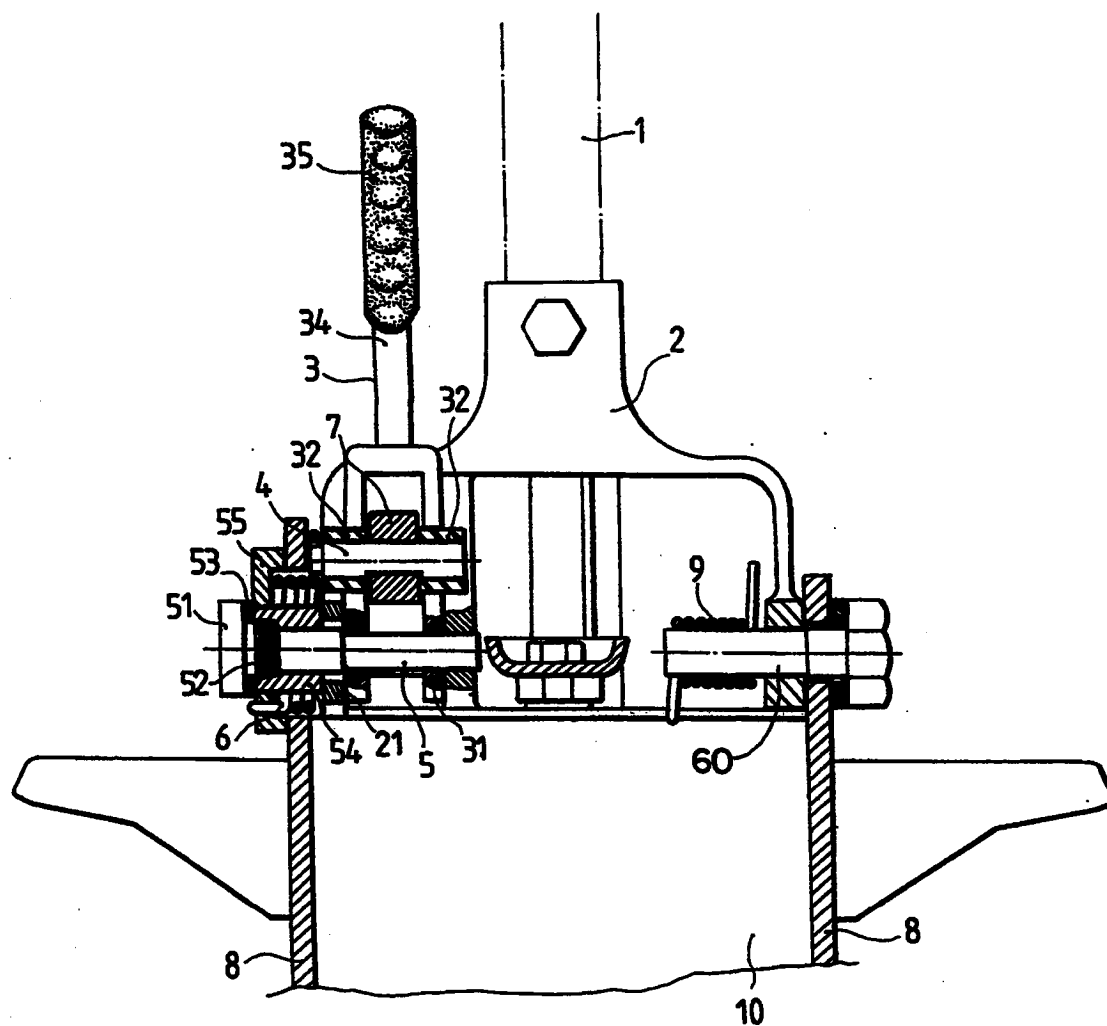
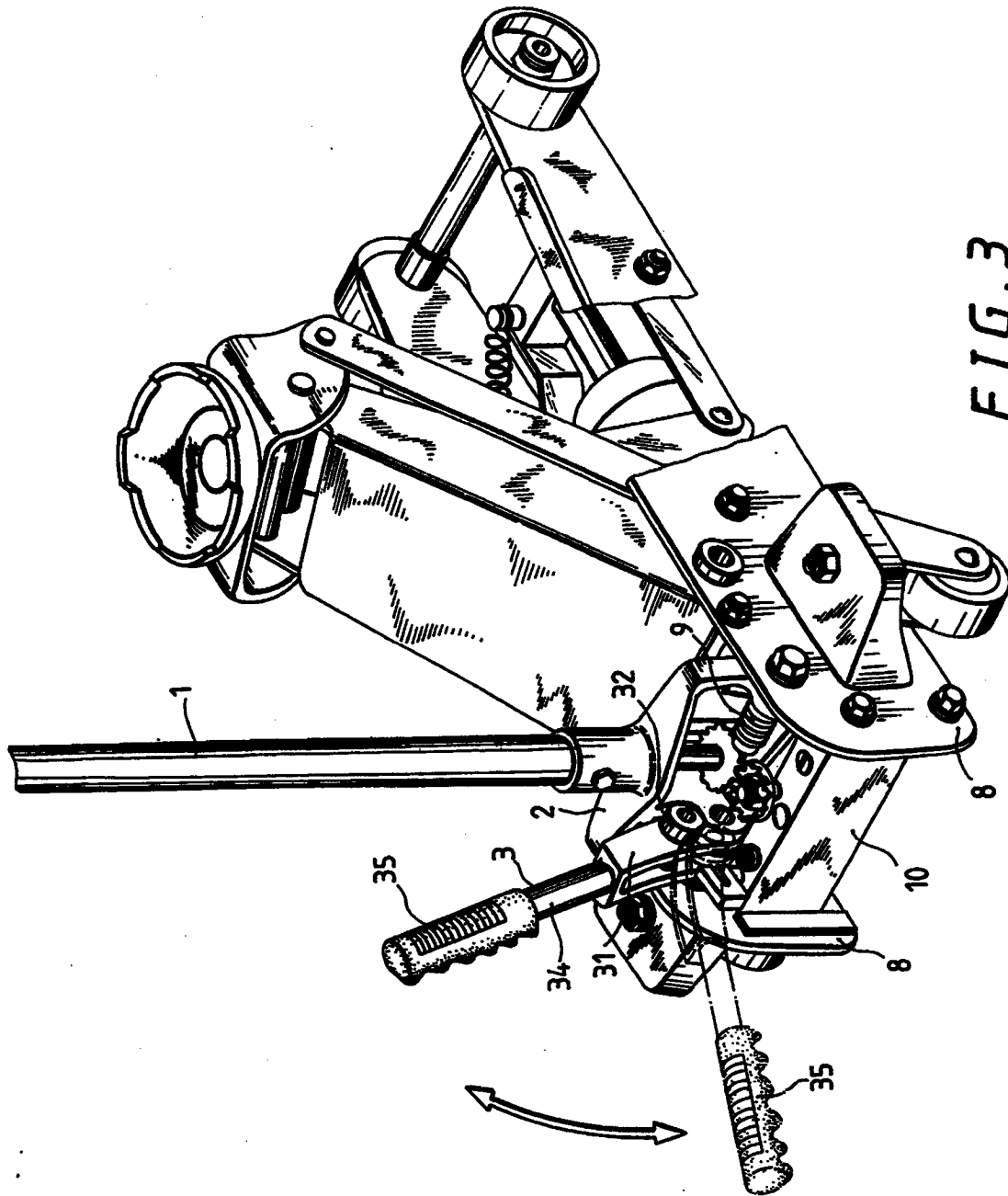


FIG. 2



HAND/FOOT DUAL OPERATED LEVER MECHANISM FOR HYDRAULIC JACKS

BACKGROUND OF THE INVENTION

a) Field of the Invention

The present invention relates to an improved structure of a hand/foot dual operated lever mechanism for hydraulic jacks, particularly to a lever mechanism in which a spring is hidden and enclosed by a housing and a hand-and-foot operated lever is attached to a foot pedal to provide a dual function lever.

b) Description of the Prior Art

U.S. Pat. No. 4,850,568 discloses a foot pedal structure wherein the two ends of a spring are placed against a foot pedal and a wheel bracket of a hydraulic jack. With such a configuration, it is difficult for the spring to produce resilient force when the foot pedal is pressed. Since the two ends of the spring are exposed to the outside, the spring tends to become disengaged after a period of time. This is particularly true with regard to the end attached to the foot pedal. Therefore, the overall structure is still not quite perfect. It is necessary to improve the practicality of such existing structure. Moreover, the foot pedal in such structure is formed into a flat surface for ease of pedalling. Such flat surface is wide so that it is appropriate only for operation by foot. In some particular cases, the hydraulic jack is placed right underneath a heavy object which makes it difficult to provide space for a foot to operate the hydraulic jack.

SUMMARY OF THE INVENTION

The main object according to the present invention is to provide a dual lever mechanism which can be operated by hand/foot to pressurize or depressurize a hydraulic jack. A foot pedal of the hydraulic jack can be attached to a short rod which can be operated by hand or by foot, thus providing a dual-function hand or foot operated pedal. This is practical for a user to operate the hydraulic jack under different operating environments. In addition, a spring provided for the foot pedal is placed inside an external housing. The spring fits over a circular housing on a bolt and is hidden axially thereof between the external housing and lugs on the foot pedal. One end of the spring extends through and is positioned by the external housing. The other end of the spring is hooked onto a crank pin to assure that the spring is not exposed to the exterior, thus avoiding possible disengagement.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:

FIG. 1 is a perspective fragmented view of a hydraulic jack having a mechanism according to the present invention.

FIG. 2 is a cross-sectional view of an assembly of the hydraulic jack and the mechanism according to the present invention.

FIG. 3 is a perspective view of the hydraulic jack and mechanism according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As can be seen in the accompanying drawings, a hand/foot dual operated lever mechanism for a hydraulic jack includes a hand operated lever 1, a movable base 2, a foot pedal 3, a crank pin 4, a foot pedal pivotal bolt 5 and a spring 6.

The lever 1 is provided on the top of the movable base 2 and is used manually to reciprocate a plunger 7 of a pump so as to pump hydraulic fluid for pressurization. The movable base 2 has extending from a bottom portion thereof three supporting members 21, 22 and 23. Supporting members 21 and 23 cooperate with two side plates 8 of the hydraulic jack, allowing pivotal bolt 5 and a right pivot bolt 60 to secure base 2 in position. In addition, the supporting members 21 and 22 are provided with circular recesses or slots 211 and 221 for accommodating respective lugs provided on the foot pedal 3.

The foot pedal 3, having an appropriate shape of a short lever, is formed into a fork 31 at one end with a suitable length. The fork 31 is made to fit between supporting members 21 and 22, and has lugs 32 used to secure the fork in place. Circular protruded portions of the two lugs 32 cooperate with circular recesses or slots 211 and 221 of the supporting members 21 and 22. In addition, the two sides or legs of fork 31 are provided with respective holes 33. The other end of the foot pedal 3 is extended to form a tubing 34 which may include a grip 35 and thereby be capable of being activated by being grabbed by hand or stepped on by foot.

The crank pin 4 is inserted through and connects center holes of the two lugs 32, so that crank pin 4 can be received in a groove 71 of U-shaped plunger 7 of the pump.

The foot pedal pivotal bolt 5 is a shaft and has a cap 51 at an outer end. A center portion of bolt 5 is provided with external threads 52. A washer 53 is first inserted over bolt 5 which is then inserted through a circular housing 54 having internal threads threaded to threads 52. An external housing 55 fits over housing 54. In addition, bolt 5 also is inserted through the supporting members 21 and 22 as well as holes 33 of the foot pedal. However, the spring 6 is placed inside an annular hollow or recess between the circular housing 54 and external housing 55 first. Furthermore, the bolt 5 is used to secure the external housing 55 to the side plate 8 of the hydraulic jack. One end of the spring 6 extends axially through a hole in external housing 55 and positions external housing 55. The other end of spring 6 is hooked onto the crank pin 4, as is shown in FIG. 2.

The above mentioned supporting member 23 located on the opposite side (right side as shown) of the movable base 2 is directly secured with the corresponding side plate 8 of the hydraulic jack by pivot bolt 60. Thus, the movable plate 2 is pivotably connected to the two side plates 8 of the hydraulic jack. A spring 9 is inserted onto the bolt 60. One end of the spring 9 is urging against the top of a base 10 of the hydraulic cylinder, and the other end of spring 9 extends upward and is retained in position against movable base 2. The spring 9 provides the required resilient force during rotation or pivoting of the movable base 2.

In practical use, when the lifting plate of the hydraulic floor jack is not in contact with a load, a user can operate the foot pedal 3 either by hand or by foot. The lifting plate can thus be raised quickly and easily into

contact with a load. At such time, the movable base 2 remains in its original or rest position, and it is only the foot pedal 3 that is pivoted. When the lifting plate starts to lift a heavy load, the user then can achieve further lifting by use of lever 1 to conserve energy. Thus, the lifting operation can be conducted step-by-step. Pivoting movement of the movable base 2 due to the force exerted on lever 1 displaces or pivots the foot pedal 3 synchronously. However, the force exerted on the movable base 2 is much greater than the force exerted on the foot pedal. Therefore, the reciprocating movement of the operating lever 1 does not have a negative impact on operation, and the structure definitely provides a mechanism making it possible to save energy quickly.

In the above described configuration, the spring 6 cooperates with the associated components so that it is hidden and not exposed to the exterior. In addition, the foot pedal 3 can be adapted to accept a dual function grip 35 capable of operation by hand or by foot. Pedal 3 thus is convenient and enables flexibility of use, regardless of the operating environment.

Although the invention has been described in its preferred form with a certain degree of particularity, it is to be understood that the present disclosure of such preferred form has been made only by way of example, and numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed. It is intended that the patent shall cover, but suitable expression in the appended claims, whatever features of patentable novelty exists in the invention disclosed.

I claim:

1. In a lever mechanism for a hydraulic jack and including a shaft to be mounted on the jack, a pedal mounted on said shaft for reciprocating pivotal movement thereabout in opposite directions to result in reciprocating movement of a plunger of a pump of the jack, and a spring mounted to bias said pedal to pivot in one said direction about said shaft, the improvement comprising:

an inner housing and an external housing positioned about said shaft with an annular recess defined between said inner and external housings; said spring being mounted in said annular recess to surround said inner housing and inwardly of said external housing; and said spring having a first end retained by said external housing and a second end urging said pedal to pivot in said one direction about said shaft.

2. The improvement claimed in claim 1, wherein said shaft has a portion with external threads, and said inner housing has internal threads threaded to said external threads.

3. The improvement claimed in claim 2, wherein said inner housing has a cylindrical exterior surface about which is positioned said spring.

4. The improvement claimed in claim 3, wherein said external housing has therethrough an opening coaxial of said shaft and defined by an inner surface fitting about said cylindrical exterior surface of said inner casing.

5. The improvement claimed in claim 1, wherein said first end of said spring fits into a hole in said external housing.

6. The improvement claimed in claim 5, wherein said pedal supports a crank pin extending parallel to said shaft, and said second end of said spring engages said crank pin.

7. The improvement claimed in claim 1, wherein said pedal supports a crank pin extending parallel to said shaft, and said second end of said spring engages said crank pin.

8. The improvement claimed in claim 1, wherein said shaft has at an outer end thereof a cap extending radially outwardly beyond openings through said inner and external housings.

9. The improvement claimed in claim 1, wherein said pedal has a fork shaped first end fitted about said shaft and a tubular shaped second end.

10. In a hydraulic jack having a lever mechanism including a shaft mounted on said jack, a pedal mounted on said shaft for reciprocating pivotal movement thereabout in opposite directions resulting in reciprocating movement of a plunger of a pump of said jack, and a spring mounted to bias said pedal to pivot in one said direction about said shaft, the improvement comprising:

an inner housing and an external housing positioned about said shaft with an annular recess defined between said inner and external housings;

said spring being mounted in said annular recess to surround said inner housing and inwardly of said external housing; and

said spring having a first end retained by said external housing and a second end urging said pedal to pivot in said one direction about said shaft.

11. The improvement claimed in claim 10, wherein said shaft has a portion with external threads, and said inner housing has internal threads threaded to said external threads.

12. The improvement claimed in claim 11, wherein said inner housing has a cylindrical exterior surface about which is positioned said spring.

13. The improvement claimed in claim 12, wherein said external housing has therethrough an opening coaxial of said shaft and defined by an inner surface fitting about said cylindrical exterior surface of said inner casing.

14. The improvement claimed in claim 10, wherein said first end of said spring fits into a hole in said external housing.

15. The improvement claimed in claim 14, wherein said pedal supports a crank pin extending parallel to said shaft, and said second end of said spring engages said crank pin.

16. The improvement claimed in claim 10, wherein said pedal supports a crank pin extending parallel to said shaft, and said second end of said spring engages said crank pin.

17. The improvement claimed in claim 10, wherein said shaft has at an outer end thereof a cap extending radially outwardly beyond openings through said inner and external housings.

18. The improvement claimed in claim 10, wherein said pedal has a fork shaped first end fitted about said shaft and a tubular shaped second end.

* * * * *

[54] LEVER CONNECTING MECHANISM FOR
HYDRAULIC JACKS

[76] Inventor: Michael Hung, 11th Flr., 624, Ming
Chuan E. Road, Taipei, Taiwan

[21] Appl. No.: 270,354

[22] Filed: Nov. 14, 1988

[51] Int. Cl.⁴ B60P 1/48; G05G 11/00

[52] U.S. Cl. 254/8 B; 254/DIG. 3;
74/481; 74/519; 74/512; 74/523

[58] Field of Search 254/8 B, DIG. 3, 93 H;
74/512, 481, 141.5, 519, 560, 523, 524; 60/477,
479

[56] References Cited

U.S. PATENT DOCUMENTS

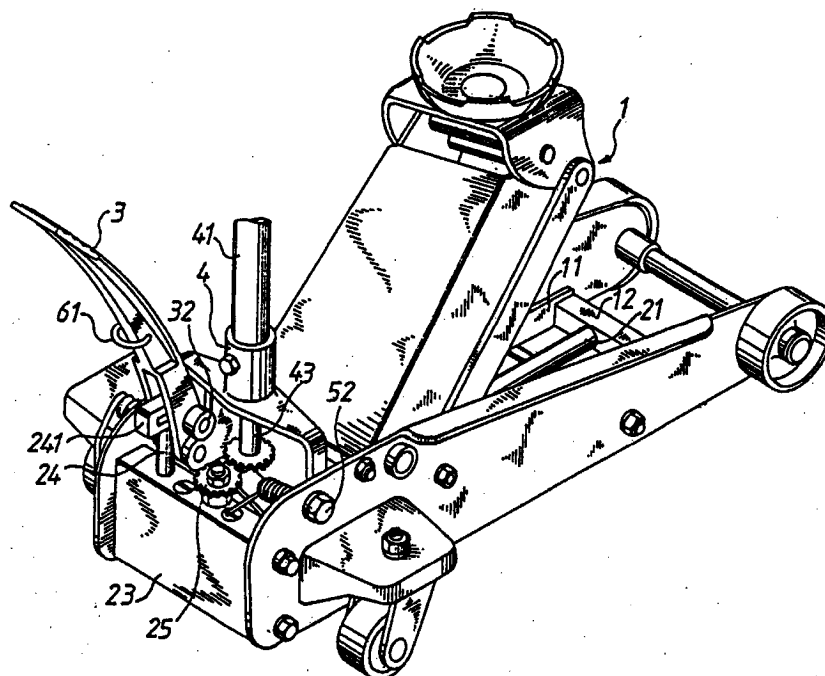
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4,251,056	2/1981	Maniglia	245/8 B
4,656,879	4/1987	Jen	254/93 H
4,765,593	8/1988	Hung	245/8 B

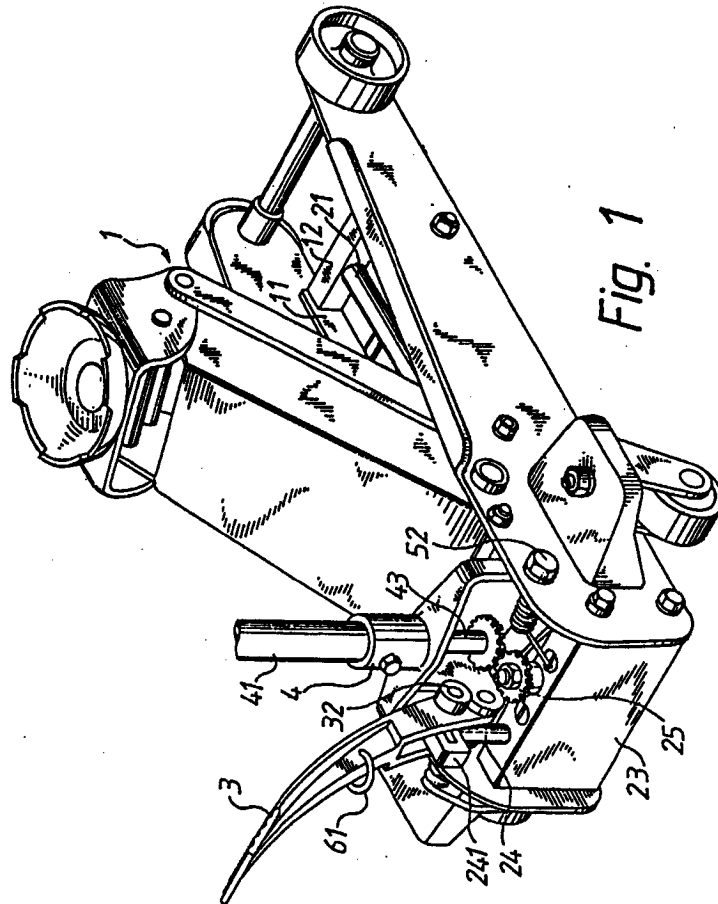
Primary Examiner—Rodney M. Lindsey
Assistant Examiner—Flemming Saether
Attorney, Agent, or Firm—Ladas & Parry

[57] ABSTRACT

A lever connecting mechanism for a horizontal hydraulic jack with tension rod comprises a vertical pumping rod having a traversed U-shape connecting member fixed thereon for receiving a bar provided on a foot pedal which is pivotally connected to the structure of the hydraulic jack, and a lever member pivotally connected to the structure of the hydraulic jack. The lever member has the same axis of rotation as the one of the foot pedal so that said lever member can be used to drive said foot pedal toward a downward direction. Since the foot pedal and the lever member are individually supported by two springs at their upmost position, the foot pedal can be depressed without affecting the lever member, but however, the downward movement of lever member will cause the foot pedal being depressed also.

3 Claims, 2 Drawing Sheets





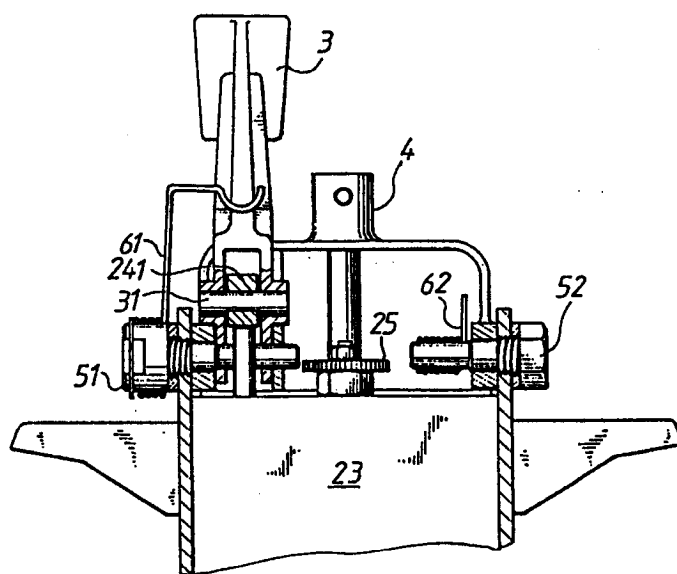
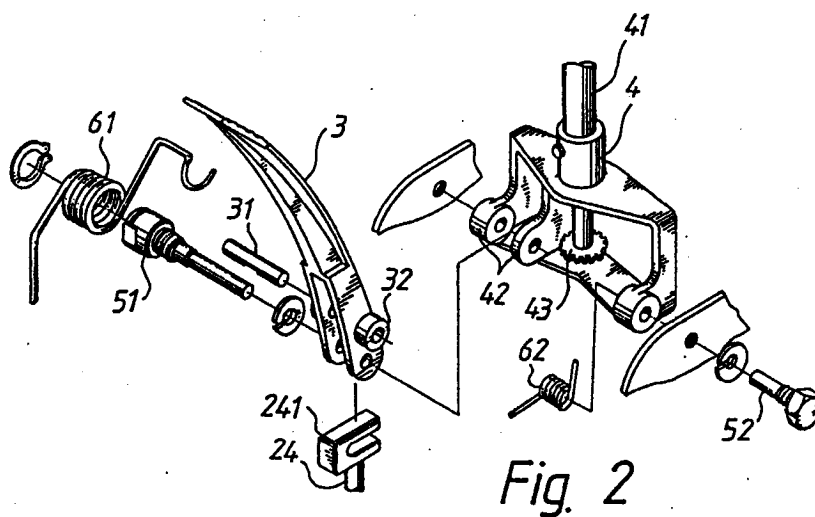


Fig. 3

LEVER CONNECTING MECHANISM FOR HYDRAULIC JACKS

FIELD OF THE INVENTION

This invention relates to an improved lever connecting mechanism for horizontal hydraulic jacks, and more particularly it relates to a lever mechanism which can be operated by hand or foot to provide the pumping action for pressurizing the hydraulic system of the jack.

BACKGROUND OF THE INVENTION

The portably hydraulic jacks, which can usually be seen in the market, can be divided mainly into two different groups with respect to the positions of their hydraulic cylinders. The first kind, which will be referred to herein as a vertical jack in the following, has its hydraulic cylinder placed in a vertical position the lifting action is done directly by the protrusion of the piston rod. The second kind, which will be referred to as a horizontal jack in the following, has its hydraulic cylinder placed in a horizontal position the lifting arm is raised by the cylinder through linkages. This invention relates mainly to the horizontal jacks.

For a horizontal jack, the linkages of the lifting arm can be pushed directly by the hydraulic cylinder, or else the linkages of the lifting arm can be pulled by a tension rod pivotally connected to the top of the piston rod of the hydraulic cylinder. With the addition of the tension rod, the overall length of the horizontal jack can be shortened and this will cut down the overall weight of the whole construction.

The conventional portable horizontal jack, especially the horizontal jack with tension rod, can only be operated by hand. However, it is desirable to have a compact horizontal jack which can be operated by hand or foot conveniently.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a mechanism which can be operated by hand or foot to pressurize the hydraulic system of a horizontal jack of the type having a tension rod. With such a mechanism, which will not significantly complicate the device or sacrifice the compactness of the same, a portable horizontal jack with tension rod will be more handy to use.

According to the present invention, a lever connecting mechanism for a horizontal hydraulic jack with tension rod comprises a vertical pumping rod having a traversed U-shape connecting member fixed thereon for receiving a bar rotatably fixed on a foot pedal which is pivotally connected to the structure of the hydraulic jack, and a lever member pivotally connected to the structure of the hydraulic jack. The lever member has the same axis of rotation as the one of the foot pedal so that said lever member can be used to drive said foot pedal toward a downward direction. Since the foot pedal and the lever member are individually supported by two springs at their upmost position, the foot pedal can be depressed without affecting the lever member; however, the downward movement of lever member will cause the foot pedal being depressed also.

BRIEF DESCRIPTION OF THE DRAWING

The invention will be more fully understood from the following detailed description thereof, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of the embodiment of the lever connecting mechanism according to the present invention which is provided on a horizontal jack with tension rod.

FIG. 2 is an isolated view of the embodiment of the lever connecting mechanism according to the present invention.

FIG. 3 is an isolated section view of the embodiment of the lever connecting mechanism according to the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

As shown in the FIG. 1, for a horizontal hydraulic jack with tension rod, the lifting arm linkages 1 are lifted by the pulling force of a pair of tension rods 11 which are pivotally connected to a holding block 12 fixed to the top of a piston rod 21. The piston rod 21 is protruded by hydraulic pressure from a hydraulic cylinder (not shown) mounted on base means 23 which include pumping rod 24 and release valve control 25 with associated means. The reciprocating movement of the pumping rod 24 will pressurize the hydraulic cylinder 22 and the release valve control 25 can be operated in order to release the pressure inside the hydraulic cylinder 22.

As can be more clearly seen from FIGS. 2 and 3, the vertical pumping rod 24 has a traversed U-shape connecting member 241 provided on top of the vertical pumping rod 24, and the vertical pumping rod 24 can be forced to move downward and upward so that the hydraulic cylinder 22 can be pressurized. A foot pedal 3 and a lever member 4 are pivotally and coaxially connected to the frame structure of the hydraulic jack. The lever member 4 is connected by bolts 51 and 52, and the foot pedal 3 is connected by bolt 51 only. The foot pedal 3 provides a bar 31 which fits into the opening between the two legs of the traversed U-shape connecting member 241 for controlling and driving the movement of the pumping rod 24. The lever member 4 has a handle 41 which can be operated with hands, and two flanges 42 confronting two protrusions 32 provided on both sides of the foot pedal 3 for driving the foot pedal 3 toward a downward direction. The lever member 4 also contains control means 43 providing a gear corresponding to a gear provided on the release valve control 25 for the control of release valve.

The foot pedal 3 and the lever member 4 are individually supported by springs 61 and 62 in order to keep the foot pedal 3 and lever member 4 at their upmost position, so that, the foot pedal 3 can be depressed independently without affecting the position of the lever member 4 or the foot pedal 3 can be depressed by the downward movement of the lever member 4. The spring 61 is installed on the bolt 51 and the two ends of the spring 61 are placed against the foot pedal 3 and wheel bracket of the hydraulic jacks. As for the spring 62, it is installed on the bolt 52 and the two ends of it are placed against the lever member 4 and base means 23 of the hydraulic jack.

It is understood that the forgoing description and accompanying illustrations are merely exemplary, and various changes and modifications to the preferred embodiments will be apparent to those skilled in the art. The scope of this invention is defined solely by the appended claims and their equivalents.

I claim:

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1. A lever connecting mechanism for a horizontal hydraulic jack with tension rod, comprising,
 a vertical pumping rod having a traversed U-shape connecting member fixed on top of said vertical pumping rod, whereby the reciprocating movement of said vertical pumping rod will pressurize a hydraulic cylinder of said hydraulic jack,
 a foot pedal pivotally connected to the frame structure of said hydraulic jack and providing a bar which can fit into the opening between the two legs of said traversed U-shape connecting member for controlling and driving the movement of said connecting member together with said vertical pumping rod,
 a lever member pivotally connected to the frame structure of said hydraulic jack having the same axis of rotation as said foot pedal, and said lever member having a handle and means for driving said foot pedal toward a downward direction so that

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said foot pedal can be depressed independently without affecting said lever member or depressed by the downward movement of said lever member and

two spring means individually installed on said frame structure for supporting said foot pedal and said lever member at their upmost position.

2. The lever connecting mechanism of claim 1, wherein said handle of said lever member contains means for controlling a release valve means of said hydraulic cylinder in said hydraulic jack.

3. The lever connecting mechanism of claim 1, wherein said spring means for supporting said foot pedal is a torsional spring installed about the axis about which the said foot pedal rotates, and the two ends of said torsional spring are placed individually against said foot pedal and a wheel bracket of said jack.

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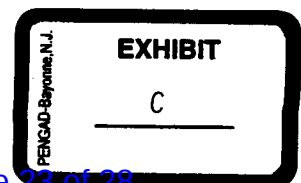
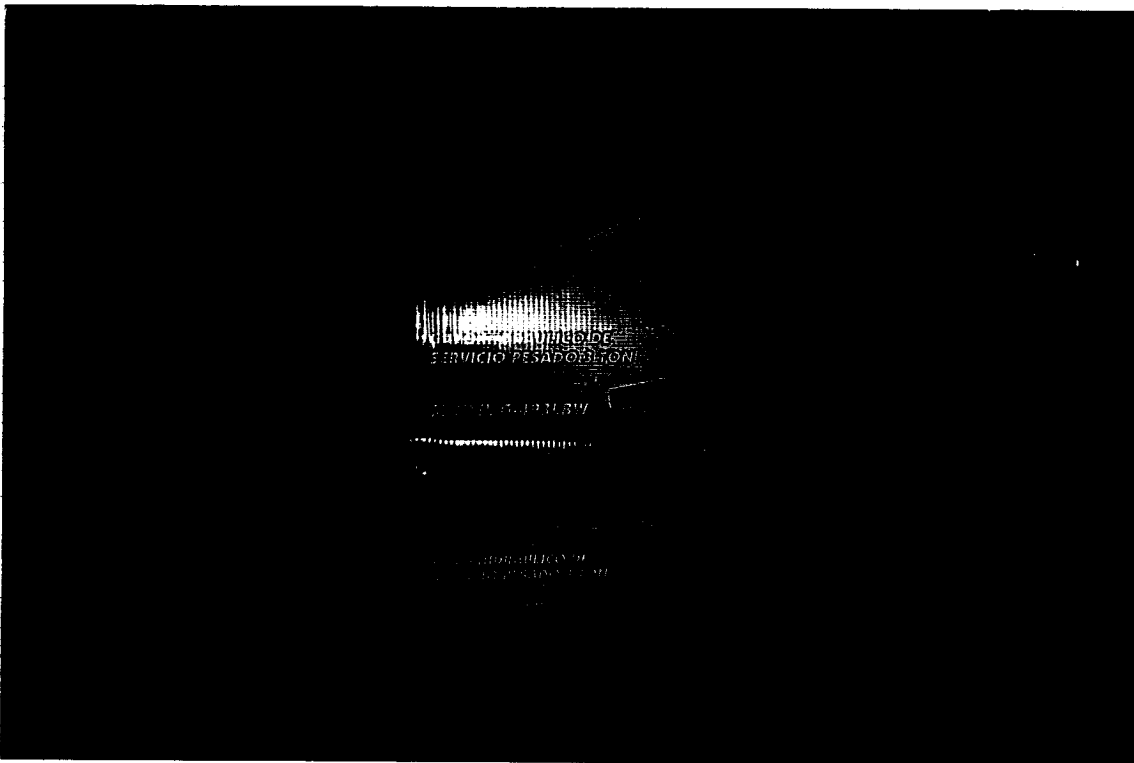
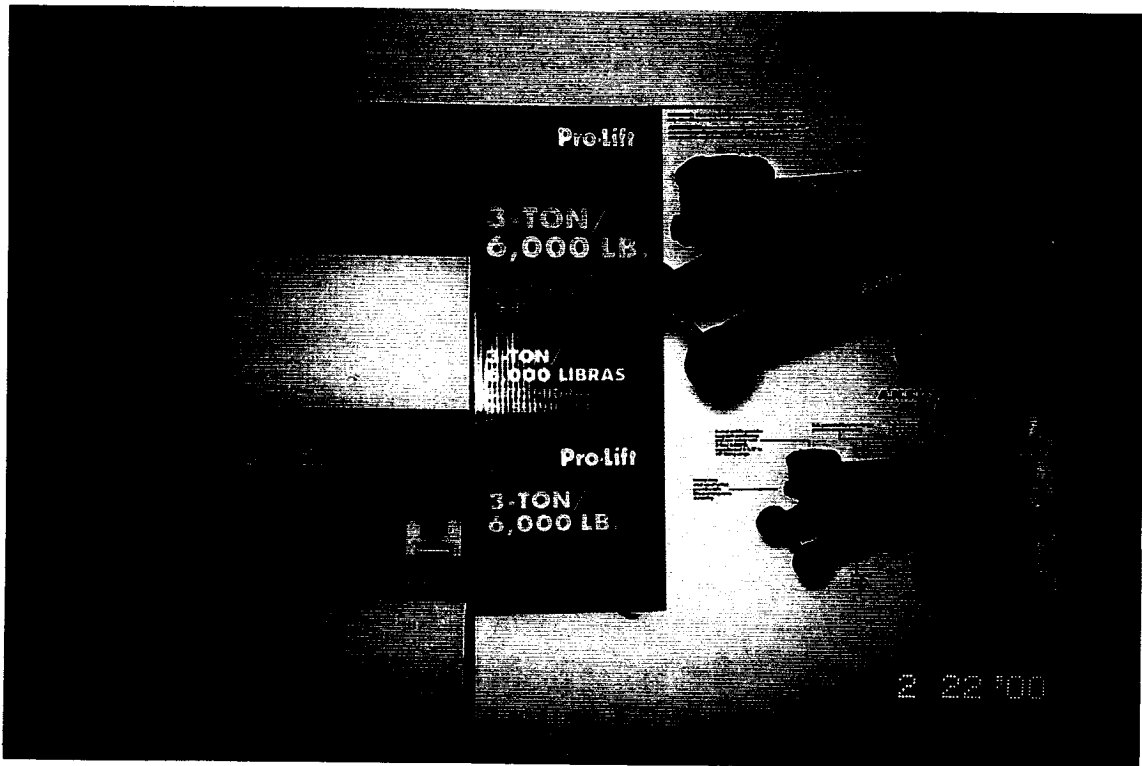
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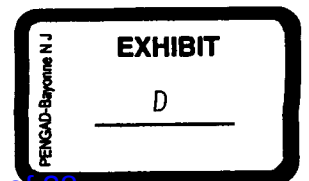
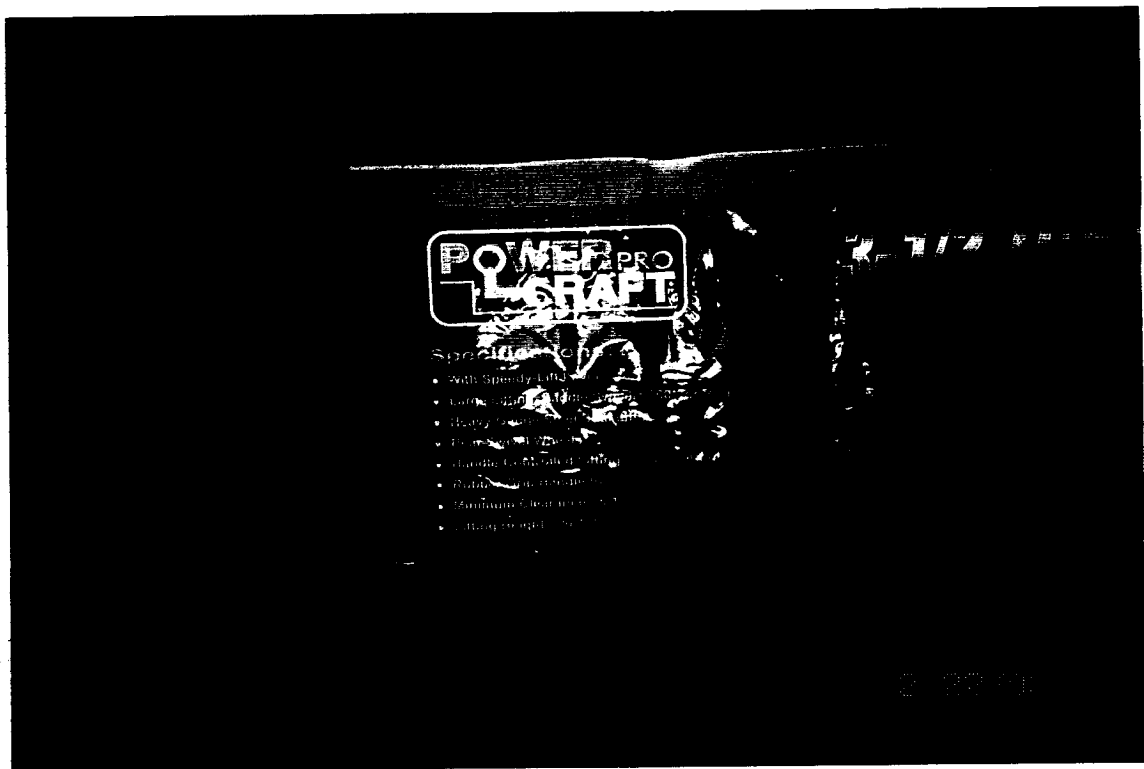
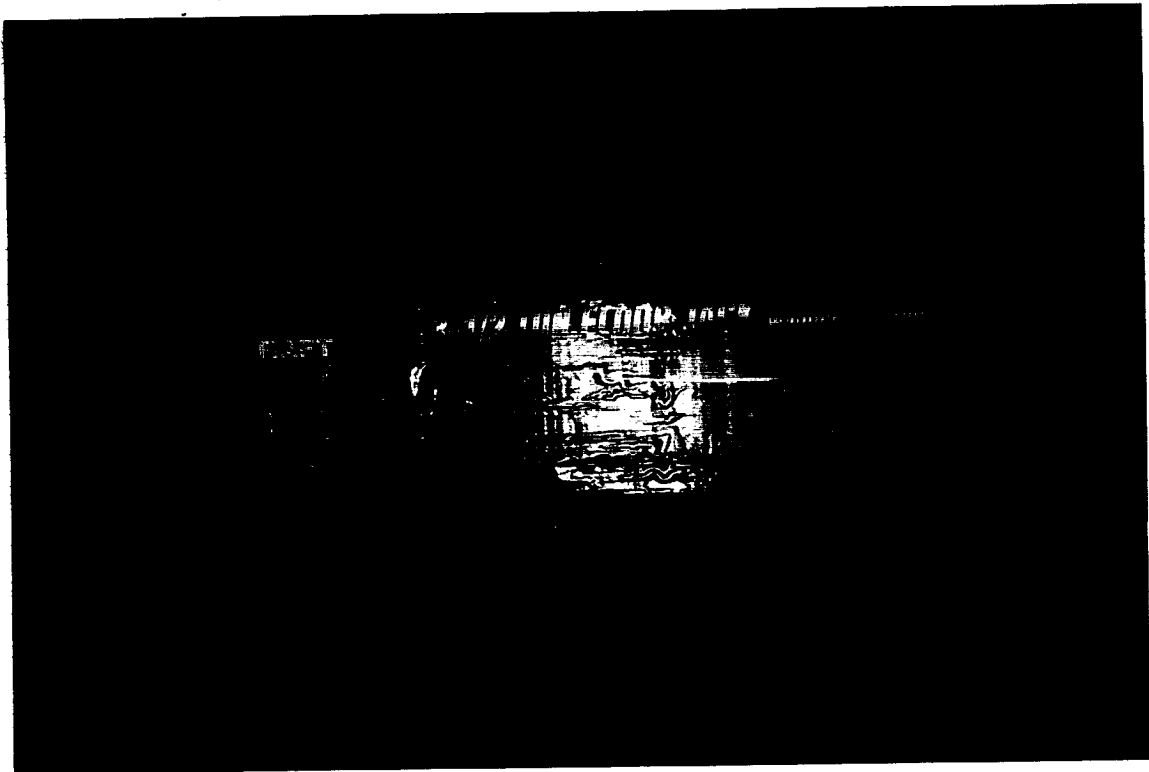
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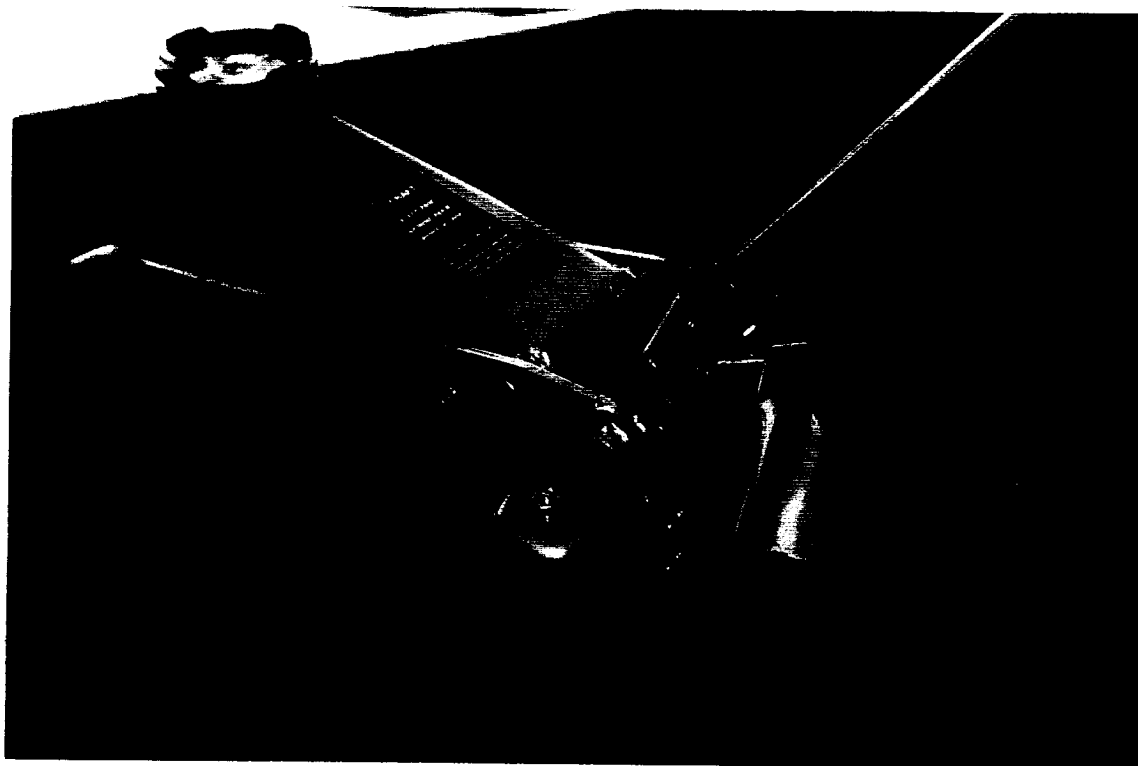
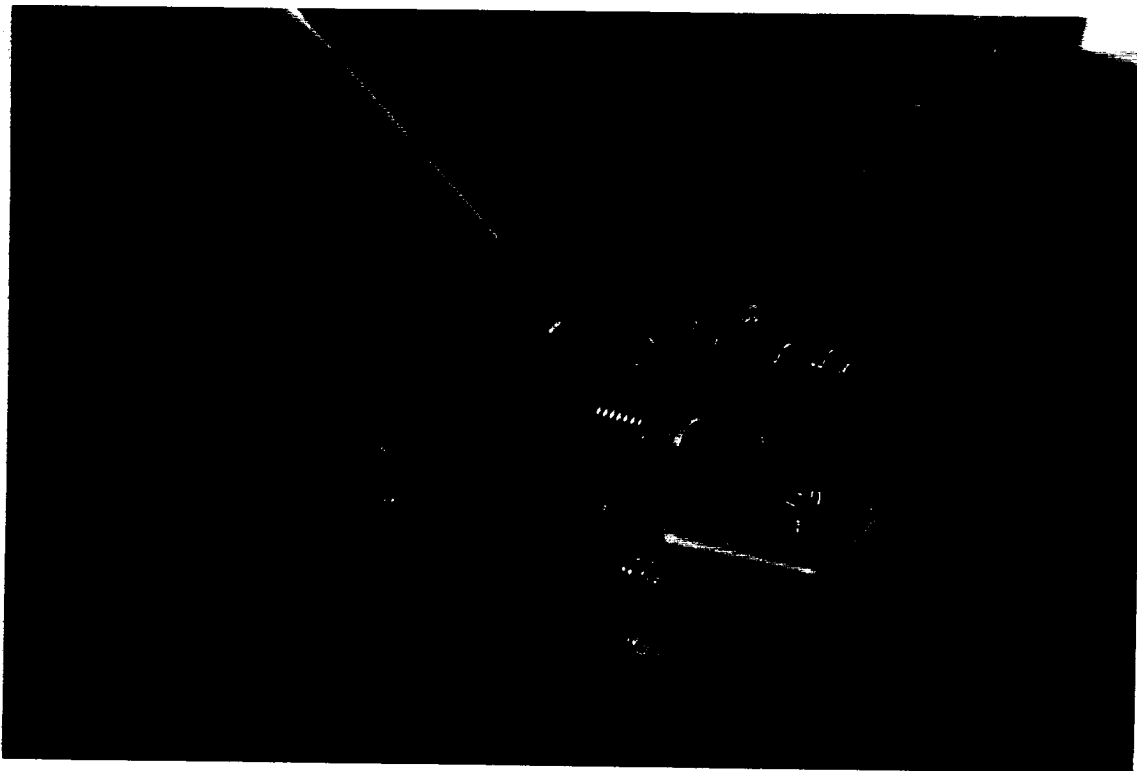
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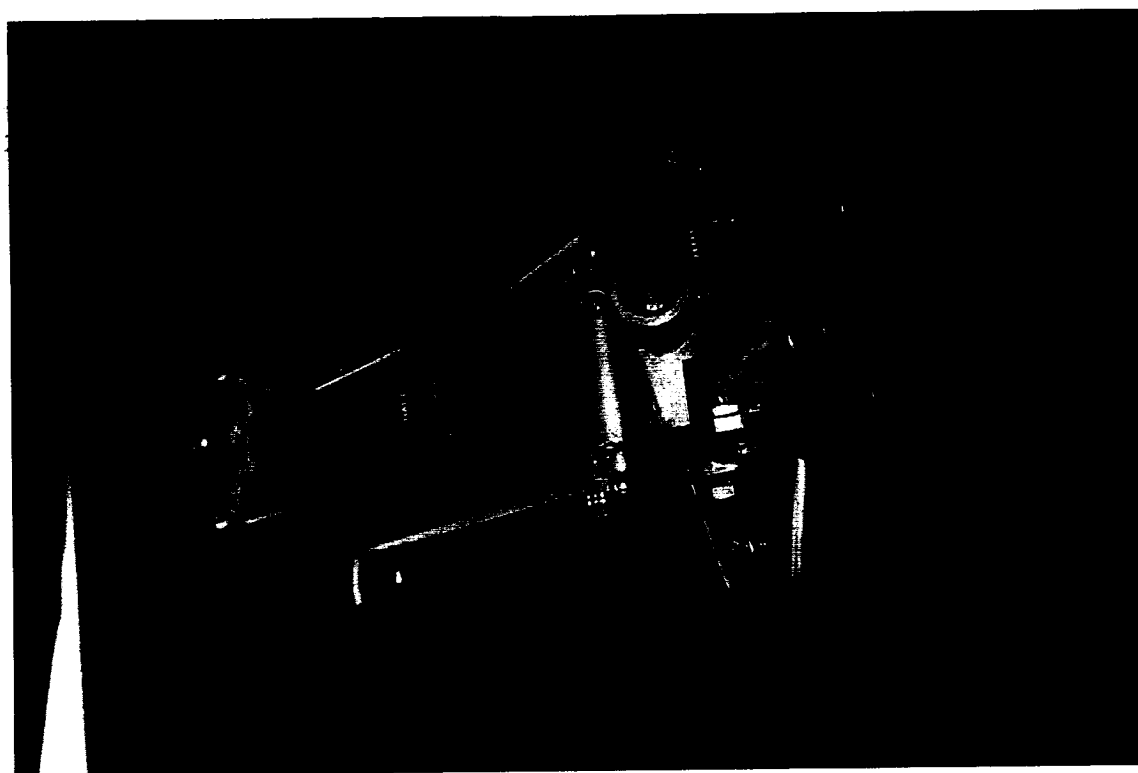
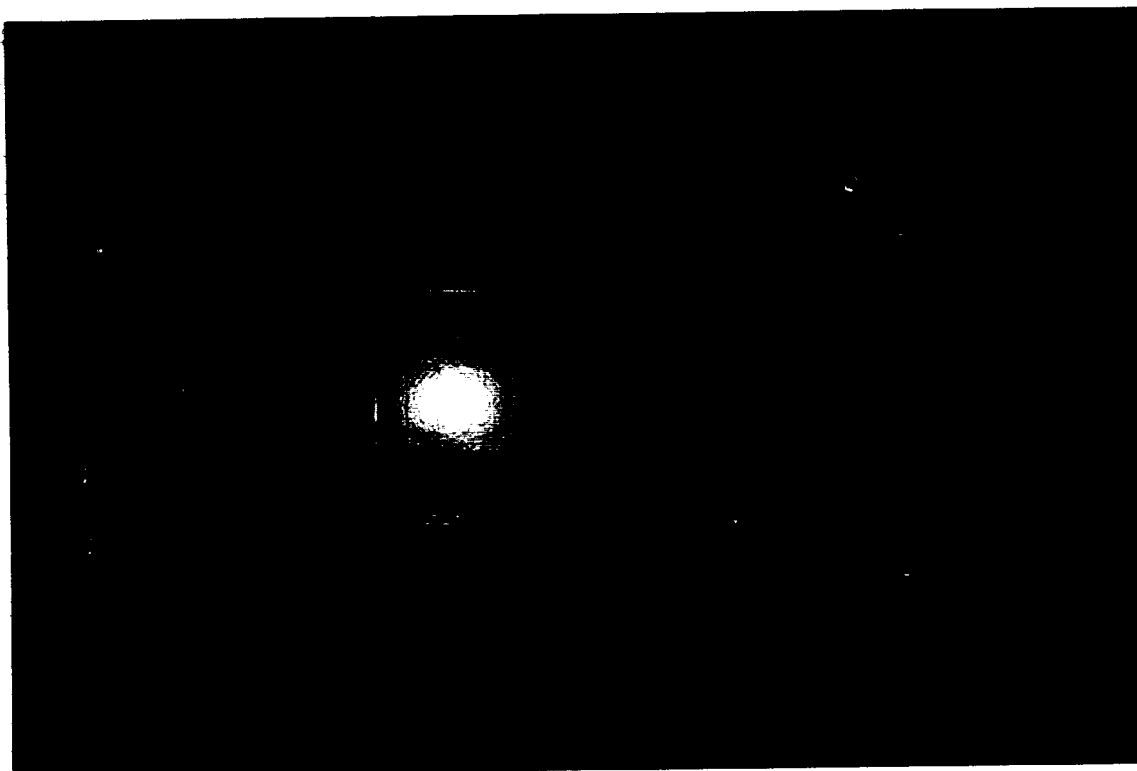
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April 28, 1999

FEDERAL EXPRESS

Mr. Peter I. Song
International Merchandising Service, Inc.
5625 Smithway Street
Commerce, CA 90040

RE: Patent and Copyright Violations
Our Matter No. 367609

Dear Mr. Song:

The law firm of Lathrop & Gage, L.C. represents Shinn Fu Company of America, Inc. and its affiliates ("Shinn Fu") in matters concerning intellectual property. Shinn Fu takes great pride in its technology and its creative works and has expended significant effort and cost to promote and protect them. Shinn Fu considers its technology and creative works to be among its greatest assets and is committed to protecting its intellectual property rights in them.

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EXHIBIT

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PENGAD-Bayonne, N.J.

April 28, 1999

Page 2

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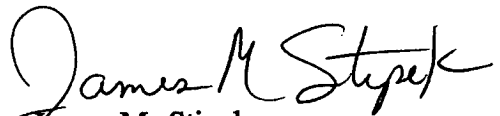
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1. A complete and accurate list of the names, addresses, and dates of the sources from whom these products and materials were obtained, including the number of products and materials obtained from each source on each date;
2. The total number of these products and materials that have been manufactured, used, sold, or offered for sale;
3. The total number of these materials that have been reproduced or distributed or for which a derivative work has been made;
4. The cost to you for each product or material; and
5. The cost at which you sell each product or material.

After we have had a chance to review this information, we can evaluate the extent and scope of the infringing activities. Although this is not an offer for settlement, we do hope that this matter can be resolved.

Sincerely,

LATHROP & GAGE L.C.

By: 
James M. Stipek

Enclosures

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